

REMARKS

Status of the Claims

- Claims 1-10 and 12-17 are pending in the Application after entry of this amendment.
- Claims 1-17 are rejected by the Examiner.
- Claim 11 is cancelled.
- Claims 1-10 and 12-17 are amended.

Interview

Applicant thanks the Examiner for granting an interview held 1/11/07. During that interview, Applicant highlighted the difference between the prior art references of Burke and Courter and the original claims. Applicant also explained aspects of the invention using the specification and Figures 3-4. The Examiner agreed that there are significant differences. Both parties agreed that clarifying amendments to the original claims highlighting the use of recovery units and primary and secondary metadata catalogs could prove useful in further distinguishing the claims from the cited art. Applicant has amended the claims to clarify that in the original claims, the term “unit” refers to a recovery unit as described in specification paragraph 0013 and throughout and the term “catalog” refers to a metadata catalog as in specification paragraphs 0015-0017 and throughout.

Claim Rejections Pursuant to 35 U.S.C. §103 (a)

Claims 1-17 stand rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,185,663 to Burke in view of U.S. Patent No. 6,119,128 to Courter. The Applicants respectfully traverse the rejection.

Burke discloses a shared persistent memory file system that provides persistent memory block allocation with multiple redo logging of memory blocks. The file system employs a three part block state indicator (V,A,U). V is a volume indication. A is an allocation sequence indication. U is an update sequence number indication. The file system (a) generates indication of the allocation sequence in the allocation map in a manner free of initially reading the block from storage memory, (b) records the indication of volume,

allocation sequence and update sequence in an entry of the transaction log of the requesting computer node, and (c) sets indications of volume, allocation sequence and update sequence on the subject block in storage memory. The file system includes redo recovery means for updating blocks in the storage memory upon a failure in the computer system. For each block being updated, the recovery means utilizes one transaction log and the block state indicators recorded therein corresponding to indications of volume and update sequence in the block in storage memory. (See Burke, Abstract)

Applicant notes that the Office Action dated 12/01/06, page 2 states that Burke teaches “linking the primary catalog to the secondary catalogs (see figure 1)”. Applicant respectfully disagrees.

Simply stated, Burke fails to teach a primary catalog or a secondary catalog. This is amplified by the Office Action page 3 which states”

“Burke does not teach creating a primary catalog comprising metadata of logical elements creating a primary catalog comprising metadata of logical elements of the units, the primary catalog referencing the units;
creating two secondary catalogs, each secondary catalog corresponding to a respective unit and comprising metadata of physical elements for the respective unit; and
maintaining the secondary catalogs such that the first unit is recoverable independently from the second unit.”

Applicant agrees with the above statement from page three, but does not agree that Burke teaches “linking the primary catalog to the secondary catalogs”. Since Burke fails to teach a primary metadata catalog or secondary metadata catalogs as recited in amended Claim 1, then Burke cannot logically teach linking the primary metadata catalog to the secondary metadata catalogs because the primary and secondary metadata catalogs as recited in amended Claim 1 do not exist in Burke.

Applicant respectfully submits that Burke does not teach a linking of metadata catalogs which are not disclosed. Applicant thus respectfully submits that not all elements of amended Claim 1 are found in the combination of Burke and Courter. For this reason alone, a prima facie case of obviousness has not been established according to 35 U.S.C § 103(a) and

MPEP 2143.03 because all elements of the claims are not found in the cited references. But there are yet more differences between the present claims and the cited references.

Courter teaches:

“A method, apparatus, and article of manufacture for a computer implemented recovery system for restoring a database in a computer. The database contains objects and is stored on a primary data storage device connected to the computer. Objects of different types in the database are copied from the primary data storage device to a secondary data storage device. Modifications to the objects are logged in a log file. A recovery indicator is received that indicates that recovery of the objects in the database is required. The objects are copied from the secondary data storage device to the database on the primary data storage device. Modifications in the log file are applied to the copied objects during one pass through the log file.” (Abstract)

One of the teachings of Courter is that a primary storage device and a secondary storage device are used as backups such that the primary storage device and the secondary storage device have the same information via coping of table partitions from one device to another during a recovery. Courter teaches:

“The database may be stored on a primary data storage device, while the copies of the database partitions and indexes are stored on a secondary data storage device.” (col. 4 lines 39-43). and

“If recovery of the table partitions and partitioning indexes are required, the recovery system 122 of the present invention copies the table partitions and partitioning indexes from the secondary data storage device back to the database.” (col. 4 lines 46-50).

Applicant notes that the primary metadata catalog and secondary metadata catalogs of amended Claim 1 do not recite that they contain copies of each other’s data. Thus, the hardware primary storage device and the hardware secondary storage device of Courter are structurally and functionally different than the software primary metadata catalog and the secondary metadata catalogs of amended Claim 1.

Applicant also notes that Courter does not teach any use of metadata. The subject of metadata is absent from the specification of Courter. Thus, Courter cannot be used as a reference that specifically teaches creating a primary metadata catalog comprising metadata

of logical elements of the recovery units as recited in amended Claim 1 because Courter fails to teach primary metadata catalogs. Likewise, Applicant notes that Courter also fails to teach two secondary metadata catalogs where each secondary metadata catalog corresponds to a respective recovery unit, where each secondary metadata catalog comprises metadata of physical elements for the respective recovery unit as indicated in amended Claim 1.

Also, as is the case in Burke, since a primary and two secondary metadata catalogs are not taught or suggested in Courter, then a linking of the primary metadata catalog to the secondary metadata catalogs cannot logically be found in the teachings of Courter. As an additional consequence of Burke and Courter failing to teach a primary and a secondary metadata catalog, with all of the limitations recited in amended Claim 1, then neither Burke nor Courter, considered either alone or combined, can teach or suggest maintaining the secondary metadata catalogs such that the first recovery unit is recoverable independently from the second recovery unit as recited in Claim 1.

In yet another aspect, Courter teaches:

“The recovery system 122 allows for independent recovery of the data and indexes, and a significant decrease in elapsed time since the log file updates are done for all objects in the database with one pass through the log file.” (col. 4 lines 57-60).

Applicant submits that although Courter teaches the independent recovery of data and the independent recovery of indexes for that data, Courter does not teach independent recovery of a first recovery unit from a second recovery unit within the context of recovery units as partitions of a database as in amended Claim 1.

Applicant respectfully submits that the teachings of Burke and Courter, considered separately or combined, fail to meaningfully teach the elements of amended Claim 1.

Whereas amended Claim 1 recites primary and secondary metadata catalogs, Burke is completely without such metadata catalogs. Whereas amended Claim 1 recites primary and secondary metadata catalogs, Courter teaches primary and secondary hardware storage devices, such as magnetic tape. Whereas amended Claim 1 recites the primary and secondary metadata catalogs containing specific metadata, Courter fails to teach any form of metadata. Whereas amended Claim 1 recites linking the primary metadata catalog to the secondary

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metadata catalogs, neither Burke nor Courter can possibly teach a linking of an element that neither discloses.

Since the combination of Burke and Courter fail to teach all of the elements of independent amended Claim 1, then Applicant respectfully submits that a prima facie case of obviousness has not been established according to 35 U.S.C. §103(a) and MPEP 2143.03 which requires that all claim elements be taught or suggested by the cited references. Also, as indicated in MPEP 2143.03, the dependent Claims 2-6, which depend from independent Claim 1 are likewise rendered non-obvious.

Since independent amended Claims 7 and 12 have similar elements not found in either Burke or Courter, these claims, and their respective dependent claims are also rendered non-obvious. Applicant thus respectfully requests withdrawal of the 35 U.S.C. §102(a) rejection of Claims 1-10, and 12-17 as these claims patentably define over the cited art because all elements are not found in the cited art.

Conclusion

Applicants respectfully submit that the pending claims patentably define over the cited art. Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection. A Notice of Allowance for all pending claims is earnestly requested.

Respectfully Submitted,

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